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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,444

09/29/2003

Kenji Araki

117361

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EXAMINER

TRINH, THANH TRUC

ART UNIT

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1795

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DELIVERY MODE

04/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/671,444	Applicant(s) ARAKI ET AL.	
	Examiner THANH-TRUC TRINH	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,9-15 and 21 is/are pending in the application.
- 4a) Of the above claim(s) 1,2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-15 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/24/2008 has been entered.

Claim Rejections - 35 USC § 112

1. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites limitation "a non-thermoplastic material a modulus of elasticity or coefficient of viscosity of which is lowered below that of said first layer during a rise of a temperature of the non-thermoplastic material within a predetermined range in the process of heating of the material to cure the non-thermoplastic material" at lines 16-19. It is unclear as to what being claimed, a second layer of non-thermoplastic material or a second layer of a modulus of elasticity of coefficient of viscosity of which is lowered below that of said first layer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9-15 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Tourneux (US Patent 4210462).

Regarding claims 9 and 21, as seen in Figures 1-4, Tourneux teaches a generator panel comprising a plurality of solar cells (11), each including a semiconductor structure (such as silicon) and electrically conductive members (12 and 13 in Figures 1 and 3, 22 and 23 in Figure 2) in the form of metallic foils (col. 6 lines 16-19) connected to the solar cells; a heat dissipating layer (i.e. inset film 22, adhesive 29 and adhesive surrounding solar cell 11 in Figure 2; inset film 37, adhesive 39b and adhesive surrounding solar cell 11 in Figure 3; or inset film 38, adhesive 39c and adhesive surrounding solar cell 11 in Figure 3) formed of a synthetic resin containing a thermally conductive filler (See col. 2 lines 34-39); and a base plate (14 or 15 in Figures 1 and 3, 24 in Figure 2) to which each of the solar cells is fixed through the heat dissipating layer. Since the heat dissipating layer (or adhesive mentioned above) cover only surrounding the solar cell and one side (i.e. non-light receiving side), therefore it is the Examiner's position that each semiconductor structure of the solar cell is embedded in the heat dissipating layer such that side surfaces thereof are covered by the heat dissipating layer, a lower surface thereof is located below a surface of the heat dissipating layer, and an upper surface thereof receiving light is not covered by said

heat dissipating layer. The heat dissipating layer has a two-layer structure and consists of a first layer (inset film 28 in Figure 2, either inset films 37 or 38 in Figure 3) and a second layer (top adhesive 29 which goes with inset film 28 as the first layer in Figure 2, adhesive 37 which goes with inset film 39b as the first layer or inset film 38 which goes with adhesive layer 39c in Figure 3) , located on one of opposite sides of the first layer which is remote from the base plate (24 in Figure 2, 14 or 15 in Figure 3). The second layer (or the adhesive) is formed of a non-thermoplastic material such as epoxy (See col. 2 line 66 to col. 3 line 4) and applied in the form of liquid (See col. 6 lines 26-27), therefore it is the Examiner's position that the second layer has a modulus of elasticity or coefficient of viscosity of which is lowered below that of said first layer (which is also formed of epoxy but in the form of solid - See col. 5 lines 54-65 and col. 2 lines 58-65) during a rise of a temperature of the non-thermoplastic material within a predetermined range in the process of heating of the material to cure the non-thermoplastic material.

Regarding claim 10, Tourneux describes the first layer (the inset film) and the second layer (adhesive layer) are formed of epoxy resin. (See col. 2 lines 58-68 and col. 3 lines 1-4). The epoxy resin is thermosetting. (See additional reference in supporting this property of epoxy resin, Fujisaki et al. US Patent 5942048, col. 10 lines 22-23). Therefore, Tourneux does teach the limitation of the instant claim, and the reference is deemed to be anticipatory.

Regarding claim 11, Tourneux describes the first layer (inset film) of the heat dissipating layer is formed of epoxy resin. Tourneux also teaches the inset film and inset plate are made from the same material (See col. 5 lines 54-65 and col. 2 lines 58-65). A

plate is inherently made of solid material. Therefore the first layer of the heat dissipating layer is formed of solid epoxy resin. Tourneux also describes the second layer (adhesive layer) is formed of epoxy resin. (See col. 2 lines 58-68 and col. 3 lines 1-4), and in liquid form. (See col. 6 lines 26-27).

Regarding claim 12, Tourneux teaches the solar cell has a light-receiving surface, and the electrical conductive members (13) in the form of metallic foils extend outwardly from a periphery of the solar cell in a plane parallel to the light receiving surface. (See Figures 1-4)

Regarding claim 13, Tourneux teaches the solar cell has a light-receiving surface, and each of the plurality of solar cell assemblies further includes a sealing layer (top layer of adhesive 19) which is formed of a transparent resin (See col. 4 lines 11-12 and col. 2 lines 66-68) and which covers the light receiving surface. (See Figures 1-4).

Regarding claim 14, Tourneux teaches a sealing layer has a light-receiving surface, and each of the plurality of solar assemblies further includes a transparent glass plate (glass plate 14; See Figures 1-4 and col. 3 lines 54-55) which cover the light receiving surface of the sealing layer.

Regarding claim 15, Tourneux teaches that the solar cell has a light receiving surface and at least one electrode formed on the light-receiving surface, and the electrically conductive members (13) in the form of metallic foils include at least one foil which is soldered to the electrode such that the foil is inclined at a predetermined angle with respect to an upper surface of the electrode. (See Figures 1-4 and col. 6 lines 17-18).

Response to Arguments

Applicant's arguments with respect to claims 3-16 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that "Tourneux does not teach, nor would suggested, that the inset plate has the properties, as recited in the pending claims, that 'said second layer being formed of a non-thermoplastic material a modulus of elasticity or coefficient of viscosity of which is lowered below that of said first layer during a rise of a temperature of the non-thermoplastic material within a predetermined range in the process of heating of the material to cure the non-thermoplastic material.'" However, the Examiner respectfully disagrees. As explained in the rejection above, the second layer (or the adhesive) is made of liquid epoxy (See col. 6 line 24-45 and col. 2 line 66 to col. 3 line 4), while the first layer (inset film) is made of solid epoxy (See col. 2 lines 58-65 and col. 5 lines 54-65). Therefore it is the Examiner's position that the second layer is formed of a non-thermoplastic material (epoxy) having a modulus of elasticity or coefficient of viscosity of which is lowered below that of the first layer during a rise of a temperature of the non-thermoplastic material within a predetermined range in the process of heating the material to cure the non-thermoplastic material, because the second layer is in a liquid form and the first layer is in a solid form.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH-TRUC TRINH whose telephone number is (571)272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art
Unit 1753

TT
3/31/2008